

## Building a Fish Room, Part II - Water Drip System for the Fish House

Charles Pratt ©

In February 2007 we published *Building a Fish Room, Part I* in which I concentrated on wooden stands. In this article I will concentrate on a drip system that brings water into the tanks, using my own system as an example.

This is a simple system, using typical lawn sprinkler equipment. The pipes are PVC and are attached with the use of a PVC cement. I recommend the Hot Blue Glue rather than the normal clear PVC cement. I also take a piece of sandpaper and roughen up the ends of pipes and insides of connectors where you are going to glue them. Incoming water has a lot of pressure and you must do a really good job of gluing the PVC pipe and valves together.

This is not a recirculating system. Water flows into each tank, and then out to my Avocado tree. I do it this way to eliminate the transfer of disease among my guppy tanks. This system uses a lot of water, but saves a lot of time and work. I can siphon off the bottom of a whole bank of tanks in a few minutes, and just let them refill by themselves. During the summer I run the timer on each bank of tanks for 15 minutes 4 times in 24 hours. This keeps the tanks a lot cleaner than siphoning and refilling once a week. During the winter I run it for a shorter time as the incoming water is not heated and I don't want to lower the water temperature too fast.



We will start with the incoming water. This is a Culligan carbon filter which removes chlorine from the water. The red hose is incoming tap water, and the outlet goes into a copper pipe which leads to two valves. Each of those valves supplies water to a bank of tanks.

Culligan brings me a different tank with fresh carbon every 28 days. This means it has to be outside where it is accessible to Culligan when they deliver as I may not always be here. It runs about \$30 for each fresh tank.



This is a system controller. This one is made by Orbit, and was purchased at a local Home Depot store. I use one just like it for controlling my lawn sprinklers. That way I don't have to learn two different pieces of equipment for what is in effect very similar jobs. I particularly like the sliding switches that turn each valve on and off and set it for a water duration as well.



Here is the controller mounted inside the fish room. There are two wires coming out the bottom. The white one on the right is a power cord that you plug into an electrical outlet. The black one on the left is the sprinkler wire, which is a bundle of several wires going out to the valves that actually cut the flow of water on and off. The white wire in that bundle goes into a specific slot inside the controller, and is the neutral wire for all the valves. All the neutral wires on the valves are tied together and connected to the white wire on the controller. The other wires in the bundle go directly to the valves outside. They are all different colours which makes matching them up to the valves outside easy



This is the valve I use. It is the 3/4 inch sprinkler valve made by Orbit, model 57100. You need one for each bank of tanks that you want to control. This one does not have back siphon prevention built in. I have found that those back siphon prevention devices cause leaks from the valve.



Here two valves each controlled by the same controller on the other side of the wall are used to control the flow of water to two banks of tanks. The vertical wire between the two valves is the bundle of wires coming from the controller pictured above. One wire goes from each valve to the same white wire in the bundle. Any two other wires are used to go to each valve, and the other ends of each of those wires go into the controller.



This is a very useful device that feeds water from the incoming pipe to 8 different tanks. These are frequently used for getting water to pots of plants in a greenhouse. There is a close off on top for each of the 8 small valves on this device that is opened and closed with a screwdriver. This small valve can be opened or closed but does not work as a flow control device.



Here is a close up of the same distribution valve. The distribution valve requires a 1/2 inch threaded nipple, so there is a 2 inch nipple in between the valve and a 1/2" threaded "T" which has two 3/4" slip female ends that the PVC pipe can be carefully glued into.

You can see the black 1/4" tubing, the same as is used for watering gardens and plants in pots coming from the distribution valve.



That 1/4" tubing is shown here dripping into a tank. The red wire holding it in the tank is a large plastic coated paperclip that has been bent appropriately and glued to the back of the tank with silicon cement. That actually has not worked out well because the silicone does not provide a very strong bond to the plastic tank rim. I am about to begin experimenting with the drippers that are used to water plants. I will try putting those on, and then closing the top glass to hold the tubing in place.



Now we have the water in the tanks, but to drain it outside we have to have holes drilled in our tanks, and put bulkhead valves such as the one on the left into those holes. The large white nut on the left in the picture, and the first gasket go on the outside of the tank. This valve is shown with a 1" elbow on the side inside the tank. I use these as a way of regulating the height of the water inside the tank. I can turn them straight up for the deepest water or at an angle for a lower water level. You will need some sort of strainer

over the outlet to keep out fish. I used to use a piece of plastic screen with a plastic cable tie pulled tight over it to hold it on. I now coat the end of the PVC pipe that will be in the tank with clear PVC cement, and press that end down on the fiberglass screening material, just like you use for window screens. Let it dry, then trim off the excess screening. That produces a fitting with a very neat screen.



Here is the result of tightening the white plastic nut on the outside of the tank too much. The bulkhead is correctly placed, but you can see the cracks in the glass just above it. I am still one tank short on one of my banks.

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